

### Amendments to the Claims

This listing of claims will replace all prior versions, and listings, of claims in the application:

### Listing of Claims:

Claims 1-6 (Canceled).

Claim 7 (Currently Amended): A method for extracting hydrogen from a gas that contains methane comprising:

catalytically splitting hydrocarbons contained in the gas into hydrogen, carbon monoxide, and carbon dioxide in a reformer, by means of steam;

performing catalytic conversion of the carbon monoxide that was formed to carbon dioxide and hydrogen in a subsequent conversion stage, with steam;

removing the carbon dioxide after the step of catalytic conversion by means of a gas scrubber;

subsequently separating ~~ta~~ the remaining gas stream into a product gas stream that consists of hydrogen, and a waste gas stream, in a pressure swing adsorption system;

passing the entire waste gas stream to a combustion

chamber of the reformer, together with a partial hydrogen stream that is branched off from the gas behind the gas scrubber, as a combustion gas that is extensively free of carbon, and

burning the waste gas stream and said partial hydrogen stream in the reformer;

wherein during the production of hydrogen in a steady-state operation the amount of the partial hydrogen stream is adjusted ~~to~~ so that the partial hydrogen stream meets an energy demand of the reformer during common combustion with the waste gas stream.

Claim 8 (Previously Presented): The method according to claim 7, wherein a conversion reactor operating at temperatures between 360 and 500°C and a subsequent conversion reactor operating at temperatures between 210 and 270°C are used for the conversion stage.

Claim 9 (Currently Amended): The method according to claim ~~1~~ 7, wherein the carbon dioxide separated in the gas scrubber is used for technical applications or processed further to produce a product having a quality that can be used in the foods industry.

Claim 10 (Previously Presented): A system for extracting hydrogen from a gas that contains methane comprising:

at least one reformer having a combustion chamber for catalytic splitting of gaseous hydrocarbons with steam;

a conversion stage having at least one conversion reactor for catalytic conversion of carbon monoxide to carbon dioxide and hydrogen, with steam;

a gas scrubber for separating carbon dioxide from the gas stream that leaves the conversion stage; and

a subsequent pressure swing absorption system for isolating hydrogen, to which a gas line that is passed back to the combustion chamber is connected, for firing the reformer with a gas stream that exits from the adsorption system,

wherein an additional device is provided for passing back part of the hydrogen-rich gas stream that leaves the gas scrubber into the combustion chamber of the reformer.

Claim 11 (Previously Presented): The system according to claim 10, wherein the conversion stage comprises a conversion reactor operating at temperatures between 360 and 500°C and a subsequent conversion reactor operating at temperatures between 210 and 270°C.

Claim 12 (Previously Presented): The system according to claim 10, further comprising a purification stage for concentrating the separated carbon dioxide after the carbon dioxide exits the gas scrubber.